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Adobe Buildings.

Marvel of mud. By Carey Holbrook. New Mexico. v.16, no. 5. May, 1938. p.12-17. Discussion of adobe construction.

Agricultural Engineering.

Engineering's biggest job. Agricultural Engineering. v. 19, no. 5. May, 1938. p. 218.

Progress in agricultural engineering. By Arnold P.Yerkes. Farm Implement News. v.59, no. 10. May 19, 1938. p.34-35.

Agriculture.

Agriculture's new road maps. Consumers' Guide. v.5, no.2. April 25, 1938. p.3-7, 19. Farmers try a new route to better business methods for them, and steadier supplies for consumers.

Annual report for the fiscal year ending June 30, 1937. Gainesville, Fla. University of Florida. Agricultural experiment station, 1938. 184 p.

Annual report for the fiscal year ending November 30, 1937. Amherst, Mass., 1938. 99 p. Massachusetts agricultural experiment station. Bulletin no.347. Department of agricultural engineering, p. 8-10.

Biggest act on earth. By Clarence Woodbury. Country Home Magazine. v.62, no.5. May, 1938. p. 11, 30. Gigantic machinery of most ambitious piece of farm legislation ever adopted by any country - Agricultural Adjustment Act of 1938 - is moving into action. Principal objective of this mighty army is Ever-Normal Granary, which will contain five and one-half billion dollars' worth of food and fiber, enough to provide for entire nation for eighteen months in case of drought, war or disaster. Granary will contain 945,000,000 bushels of wheat; 2,845,000,000 bushels of corn, and 19,500,000 bales of cotton. Economic implications of the Ever-Normal Granary are as impressive as its enormous size. If granary program operates in practice as its sponsors say it will, it will set up and maintain stable incomes for farmers in good years and bad, and assure American consumers always of ample supplies of the necessities of life at fair prices.

Graphic summary of farm crops (Based largely on the Census of 1930 and 1935). By O.E. Baker and A.B. Genung. Washington, D.C., U.S. Govt. print. off., 1938. 129 p. U.S. Department of agriculture. Miscellaneous publication no. 267.

Agriculture. (Cont'd)

Improving Ohio's farms. Ohio Farmer. v.181, no.8. April 9, 1938. April 9, 1938. p.7. Illustrations.

Report of the Kansas state board of agriculture for the quarter ending March, 1938, containing the addresses, papers, and discussion at the sisty-seventh annual meeting of the Board, January 12-14, 1938. Topeka, Kans., Kansas state printing plant, 1938. 133 p.

Air Conditioning.

Factors in design of complete cooling system for 600-quart-a-day dairy farm. Air Conditioning and Refrigeration News. v.23, no.17. April 27, 1938. p.12. Gives calculations for a dairy farm.

Jones' estimating tables on air requirements and duct sizes for heating and air conditioning. By E.F. Jones. Chicago, Ill. Domestic engineering publications, 1936. 68 p.

Relative humidity. Domestic Engineering. v.151, no.5. May, 1938. p.51-52, 118-123. Article discusses humidity in a.c. calculations.

Sanitary aspects of air conditioning. By C.P. Yaglou. American Journal of Public Health. v.28, no.2. February, 1938. p.143-147. Summarizes comfort, health and therapeutic aspects of air conditioning in light of present knowledge and current research.

Study of summer cooling in the research residence using a small capacity mechanical condensing unit. By A.P. Kratz and others. Heating, Piping and Air Conditioning. v.10, no. 5. May, 1938. p.337-344. Part 1.

American Society of Agricultural Engineers.

Program Annual Meeting, American Society of Agricultural Engineers. Asilomar, Pacific Grove, California. June 27 to 30, 1938. Agricultural Engineering. v.19, no.5. May, 1938. p.220-223.

Barns.

Designing data for horse barns. W.C. Harrington. Amherst, Mass., n.d. 2 p. Massachusetts state college. Engineering extension series. No. 53. Mimeographed.

Pen barns and milking parlors. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 59. Mimeographed.

Suggestions for planning the dairy barn. By W.C. Harrington. Amherst, Mass., n.d. 3 p. Massachusetts state college. Engineering extension series. No. 28. Mimeographed.

Barns. (Cont'd)

Suggestions for planning the goat barn. By W.C. Harrington. Amherst, Mass., n.d. 2 p. Massachusetts state college. Engineering extension series. No.66. Mimeographed.

Bedding Materials.

Capacity of bedding materials for absorbing moisture. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. Circular no. 37. Mimeographed.

Building Construction.

Build well and wisely. Washington Farmer. v.63, no. 9. April 28, 1938. p. 3.

Modern connectors in wood construction. By John A. Scholten. Agricultural Engineering. v. 19, no. 5. May, 1938. p. 201-203. Discussion by Ira D.S. Kelly.

Strength of rectangular wooden beams with uniform loading. By W.C. Harrington. Amherst, Mass., n.d. 2 p. Massachusetts state college. Engineering extension series. No. 58. Mimeographed.

Watertight basements. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 65. Mimeographed.

Building Materials.

Accelerated weathering tests building materials. Science News Letter. v. 32, no. 854. August 21, 1937. p. 126. Accelerated aging tests that include changed in temperature, humidity and light are part of the program of research which the National Bureau of Standards is applying to fibrous building materials like insulating and wall boards for both exterior and interior uses, and sheathing papers. Effects of serious artificial weather changes will be studied to see how they create distortion, expansion and contraction, cause mold growth, vary moisture resistance and decrease strength of materials.

Central Valley Project.

Central Valley project, California. By Walker R. Young. Reclamation Era. v. 28, no. 5. May, 1938. p.80-82.

Chimneys.

How to avoid the formation of creosote in chimneys. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 14. Mimeographed.

Combines.

Combine harvester comes to Ohio. By G.W. McCuen. Ohio Farmer. v. 181, no. 8. April 9, 1938. p. 10, 32. Table shows losses of wheat, oats, and soybeans when harvested by the different methods.

I.H.C. adds 6-foot power drive combine. Implement & Tractor. v. 53, no. 10. May 14, 1938. p. 32. Design retains wellknown harvester combine features, which include following: 1. "Straight-line" threshing, by which unthreshed grain enters at front and goes through cylinder and thresher body in a straight line without interference from square corners or angles. 2. Maximum centrifugal separation at cylinder and grate, which provides separation for majority of grain from straw immediately upon threshing, thus reducing losses in hard-to-separate crops. 3. Use of single-unit platform and feeder open-end augur 41½ inches long and 16 inches in diameter, in place of platform canvas to deflect swath on feeder carrier, and over-sized separator to prevent clogging and choking. 4. Use of steel cylinder 28 inches wide and 16 inches in diameter with six corrugated steel bars that "rub out" grain just as one does with the hands without "chewing up" the straw. 5. 3-section rotary motion, walker-type straw rack which moves straw rapidly and shakes out grain thoroughly. 6. Standard, time-tried cleaning unit.

Results of field tests on small combines. By G.W. McCuen and E.A. Silver. Agricultural Engineering. v.19, no.5. May, 1938. p.207-210. Objective of study was to aid manufacturers in improvement of their products, and to furnish farmers with information regarding various adjustments, rates of travel, grain losses, and machine and overall efficiencies of combine.

Small combine has arrived. By William T. Foley. The Farmer. v.56, no.7. March 26, 1938. p. 7, 13.

They're saving money with small combines. By Bob Beeler. The Furrow. v. 43, no. May-June, 1938. p. 3, 10. Typical examples of cost reduction in small-scale harvest of grain and seed.

Cotton.

New uses for cotton. By R.J. Cheatham. Agricultural Situation. v.22, no. 5. May, 1938. p.22-23. Bureau of Agricultural Economics in cooperation with other agencies, particularly North Carolina State College, has developed new or improved cotton bagging, cotton binding material for bituminous-surfaced roads, consumer packages for fruits and vegetables, cotton fabric for curing concrete, cotton bags for packaging raw sugar, and other materials of less importance. In addition more than a score of studies and investigations of use of cotton for various purposes have been made. These have included surveys of use of cotton on farms, in wholesale grocery business, in bags of cement, flour and other commodities, and in tire fabrics, to metnion only a few. These studies serve as a guide developmental work, and, in addition, yield basic information relating to present and potential uses for cotton.

Dams.

Algerian rockfill dam substructures. By I. Gutmann. Engineering News-Record. v. 120, no. 21. May 26, 1938. p. 749-751. Placed rockfill dams in Algeria excel in underground construction to check undeflow, and provide drainage from within the structure itself.

Construction of Taylor Park dam. Uncompahgre project, Colorado. By Donald Jerman. Reclamation Era. v.28, no. 5. May, 1938. p. 84-89.

Coulee Colossus. By Arthur W. Baum. Country Gentleman. v. 108, no.2. February, 1938. p. 7-8, 68-69. All there is to it - simply three dams, storage basin, balancing reservoir, 268 miles of main canals, and indeterminate mileage of lesser canals, several large tunnels, siphons, wasteways, headgate structures, bridges, and a drainage system for collecting and using seepage water. Also amount of money equal to 1935 value of all farm land and farm buildings in state of Arkansas.

Dams and control works; A description of representative storage and diversion dams and high-pressure reservoir outlet works constructed by the Bureau of Reclamation. 2d ed. Washington, U.S. Govt. print. off., 1938. 261p.

Dams on Federal Reclamation projects. Reclamation Era. v. 28, no.5. May, 1938. p.97.

Design of rock-fill dams: By John E. Field, John H. Wilson, Frederick H. Fowler, I.C. Steele and Walter Dreyer and F. Knapp. Proceedings of American Society of Civil Engineers. v.64, no.5. May, 1938. p.937-956.

Drainage.

Land drainage: an account of improvement works in progress and completed in the River Nane catchment area. Journal of the Ministry of Agriculture. v.44, no.12. March, 1938. p.1161-1169.

Drawing.

Engineering drawing, practice and theory. By Isaac Newton Carter. Ann Arbor, Mich., Edwards brothers, inc., 1937. 271p. Processed.

Electric Wiring.

How to go about farm wiring. By Carlyle Hodgkin. Nebraska Farmer. v. 80, no. 10. May 7, 1938. p. 5, 31.

Specifications for electrical wiring. Amherst, Mass., n.d. 7p. Massachusetts state college. Engineering extension series. Circular 55. Mimeographed.

Wiring the dairy barn. By W.C. Harrington. Amherst, Mass., 1938. 7p. Massachusetts state college. Engineering extension series. No. 10, revised. Mimeographed.

Electric Wiring. (Cont'd)

Wiring the farmstead. By F.C. Fenton and H.E. Stover. Manhattan, Kans., 1938. 52p. Kansas state college of agriculture and applied science. Extension service. Extension bulletin 63, revised.

Wiring the laying house. By W.C. Harrington. Amherst, Mass., 1938. 8p. Massachusetts state college. Engineering extension series. No. 67. Mimeographed.

Wiring the milk house. By W.C. Harrington. Amherst, Mass., n.d. 4p. Massachusetts state college. Engineering extension series. No. 13. Mimeographed.

Electricity.

Electricity and magnetism. Ithaca, N.Y., 1938. 32p. New York state college of agriculture at Cornell University. Cornell rural school leaflet. v.31, no.4.

Electricity-Statistics.

Current consumption for various household uses. W.C. Harrington. Amherst, Mass., n.d. Massachusetts state college. Engineering extension series. No.3. Mimeographed.

E.E.I. annual statistical bulletin is published. Edison Electric Institute Bulletin. v.6, no.5. May, 1938. p.232. Last of series of annual statistical bulletins, beginning with year 1926, which follows long accepted classification of customers according to rate schedules. Future operating statistics of electric light and power industry will be made to conform to new system of accounts promulgated by the Federal Power Commission, in which the classification of revenue accounts has been materially altered. Institute will publish later this year a restatement of 1937 statistical data on basis of new classification of sales to facilitate a comparison next year of 1938 operating data with 1937 data, and to provide some connecting link between data of old series and the new.

200,000 farms electrified in 1937. C.R.E.A. News Letter. No. 17. June, 1938. p.3. Table II. Per cent of farms electrified by States.

Electricity on the Farm.

Application of electricity to agriculture. Rural Electrification and Electro-Farming. v.13, no. 155. April, 1938. p.205. With view to expediting rural electrification and more economical

Electricity on the Farm. (Cont'd)

application of electricity, especially to agriculture, Electrical Research Association has established co-ordinating Committee on which all interests are or will be represented to secure more effective cooperation and planning of necessary research programs and recommendations for standardization. Henceforward the Association, which is supported by the Government and all sections of industry will act as central clearing house for information and advice on many questions involved in determining procedure to be adopted, uniformity of methods, and the design, efficiency and safety of consumers' appliances. Research Department will be in charge of Mr. C.A.Cameron Brown.

Curing and storing sweet potatoes with electric heat. By E.T. Swink. C.R.E.A. News Letter. no. 17. June, 1938. p. 40-43. Cross section diagrams showing installation of electric heater in sweet potato curing and storage house. Diagram gives arrangement of electric heating units for 1,000-bushel capacity sweet potato storage house.

Depreciation of farm electric equipment. By Truman E. Hienton. Agricultural Engineering. v. 19, no. 5. May, 1938. p. 205-206, 210. Data were obtained on electric motors. Equipment driven, size, make type, serial number, age in years, days used per year, hours used per day, First cost, present value, estimated life in years, repairs and cost, and physical and service condition. Similar information regarding make, age, use, first cost, present value, estimated life, repairs and repair costs were secured, where possible, for water pumps, cream separators, milking machines, electric brooders and nine household items.

Electric water systems pave way for rural load. By R.W. Clark. Electrical World. v. 109, no. 19. May 7, 1938. p. 47-48, 113-114. Added usage is three times that obtained from pump.

Farm Electrification Council. C.R.E.A. News Letter. no 17. June, 1938. p. 8-11. Studying problems involved in: 1. Application of electricity to farm home. 2. Exhibit of electric appliances and equipment for home and farm at New York State Fair. 3. Institutional rural electrification advertising program.

Power and profit. Michigan Farmer. v. 189, no. 7. March 26, 1938. p. 3, 14. Analysis of operation of any farm emphasizes the fact that farmers have to spend money to farm; that if amount they normally spend for poor electric substitutes was converted into electric operation, farm electrification, including all conveniences and comforts in the home, would be self-supporting proposition.

Rural electrification. By John M. Carmody. Military Engineer. v.30, no. 171. May-June, 1938. p.206-208.

Thirteenth annual progress report of investigations of the various uses of electricity for agriculture in the State of Washington. Submitted December 30, 1937, to the Washington Committee on the relation of electricity to agriculture by L.J. Smith, H.N. Colby and H.L. Garver. Pullman, Wash., 1937. 35 p. Mimeographed.

Electricity on the Farm. (Cont'd)

Thirty-one year's service on a Wisconsin farm. By George H. Dacy. Electricity on the Farm. v. 11, no. 6. June, 1938. p.7-8. Threshes 2,200 bushels of grain for $7.75, fills silos without a crew, milks cows, saws wood and makes neckyokes with electricity.

Erosion Control.

Erosion and its control in Oklahoma territory. By Angus McDonald. Washington, U.S.Govt. print. off., 1938. 47 p. Bibliography. U.S. Department of agriculture. Miscellaneous publication no. 301.

Explosives.

Blasting ditches with dynamite. W.C. Harrington. Amherst, Mass., n.d. 6 p. Massachusetts state college. Engineering extension series. No. 30. Mimeographed.

Farm Buildings.

Cribs and granaries of clay tile. By C.T. Bridgman. Lumber & Building Material Dealer. v. 7, no. 4. April, 1938. p.4-5, 11.

Space requirements for animals shelters. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. Circular no. 33. Mimeographed.

Storage space required for various feeds. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. Circular no. 34. Mimeographed.

Farm Chemurgy.

Chemurgy and modern agriculture. By Arnold P. Yerkes. Farm Chemurgic Journal. v. 1, no. 2. March, 1938. p.36-38.

Industrial farm products. By L.E. Call. Farm Chemurgic Journal. v.1, no. 2. March, 1938. p.67-73. Discussion on farm products for industrial utilization is limited to those products that offer some possibility at this time of being produced, or producted only sparingly that offer promise of expanded production.

Farmhouses.

Modernize - farm homes. New Agriculture. v. 20, no. 8. May, 1938. p. 10. Restoration of Property Improvement Credit Plan and other changes in recently amended National Housing Act should prove particularly interesting and helpful to farmers desiring to finance cost of repairing, rebuilding or modernizing their homes, barns and other service buildings. New dwellings, garages, barns, silos, hog, poultry and milk houses and other such structures may also be built with loans insured by Federal Housing Administration, this feature of National Housing Act being a special opportunity for farmers desiring to improve their living conditions, or increase efficiency of their farm business.

Farmhouses. (Cont'd)

New farm homes. Montana Farmer. v. 25, no. 13. March 1, 1938. p. 3. Rural construction now possible under FHA.

Farm Income.

1937 gross farm income exceeded ten billions. Farm Implement News. v. 59, no. 11. June 2, 1938. p. 22. Nearly $700,000,000,000 above 1936, and largest since 1929.

Farm Machinery & Equipment.

Calibrate the seed drill. By W.C. Krueger. Farmers Digest. v. 2, no.1. May, 1938. p.4.

Comparing farm machine prices with those of other manufactured products. Farm Implement News. v. 59, no. 11. June 2, 1938. p. 18-19. Using official statistics Farm Equipment Institute shows facts about price changes since the pre-war period.

Farm equipment for tomorrow. Farm Chemurgic Journal. v. 1, no. 2. March, 1938. p. 50. Among farm operations for which equipment is required are following: Soybean planter, in areas where grain drills are not available. Soybean harvester which will not split so many beans. Sweet potato planter and harvester. Perilla planter and harvester. Hemp planter and harvester. Slash pine - possible harvester and cultivator. Tung nut sheller. Cornstalk harvester. Cotton stalk harvester. Chia oil plant harvester. Jerusalem artichoke planter and harvester.

Farm Equipment Institute Convention plans. Farm Implement News. v. 59, no. 7. April 7, 1938. p. 21. Forty-fifth annual convention of the Farm Equipment Institute will be held at French Lick, Indiana, October 17, 18 and 19.

Farm machinery. By Frank H. Slade. Rural Electrification and Electro-Farming. v. 13, no. 155. April, 1938. p. 206-207. Electrode boiler and two-plough tractor.

Farm prospects favor harvester. By J.C. Clifford. Magazine of Wall Street. v. 62, no. 1. April 23, 1938. p. 22-25, 64.

Fulmer develops small dehydrator for forage crops. C.R.E.A. News Letter. no. 17. June, 1938. p. 52.

Home-made sod cutters. Soil Conservation. v. 3, no. 11. May, 1938. p. 261-262.

Hum-scootin' along. By Arnold Nicholson. Country Gentleman. v. 108, no. 2. February, 1938. p. 14, 71-72. Discussion of modern farm machine.

Machines now do more for family-size farm, says McCrory. New Agriculture. v. 20, no. 8. May, 1938. p. 13.

Farm Machinery & Equipment. (Cont'd)

New Jersey grower patents tractor transplanter. By C.H. Nissley. Market Growers Journal. v. 62, no. 9. May 1, 1938. p.256-257.

New tools for agriculture. By W.M. Hurst. Agricultural Situation. v. 22, no. 5. May, 1938. p. 19-20.

New tillage tool cuts erosion. Idaho Farmer. v. 56, no. 4. February 17, 1938. p. 6. Damming lister is cultivator and planter.

Potato diggers prove effective for flower bulbs. Implement Record. v. 35, no. 5. May, 1938. p. 23.

Promise of bountiful crops helps farm equipment companies. By C. Hamilton Owen. Magazine of Wall Street. v. 62, no. 2. May 7, 1938. p. 83-85, 124-126.

Record volume possible with near record harvest. Implement & Tractor. v. 53, no. 11. May 28, 1938. p. 14-15. West and southwest, sustaining monthly incomes at time when national trend is downward, is area promising record yield and offering greatest potential farm machinery demand. Combine sales volume greatest in history of industry.

Repairing the spring-tooth harrow. By B.A. Jennings. Ithaca, N.Y., 1938. 8 p. New York state college of agriculture at Cornell university. Cornell extension bulletin 385.

Rubber problem on lister ridges solved. Farm Implement News. v. 59, no. 11. June 2, 1938. p. 20.

Stealing old stuff. By Cordell Tyndall. Missouri Ruralist. v. 79, no. 5. March 5, 1938. p. 5, 27. Principles of today's streamlined machinery were worked out centuries ago.

Unbending backs behind the hoe. Wisconsin Agriculturist and Farmer. v. 65, no. 9. April 23, 1938. p. 8, 10-11.

Unbending backs behind the seeder. Wisconsin Agriculturist and Farmer. v. 65, no. 8. April 9, 1938. p. 9, 18.

1937 U.S. sales set new record. Implement & Tractor. v. 53, no. 10. May 14, 1938. p. 16-18, 36. Table 1. Value of farm equipment and related products, manufactured and sold, by classes: 1937, 1936 and 1935. Table 2. Principal items of farm equipment and related products manufactured and sold, by number and value: 1937.

What's new in farm equipment in 1938. Ohio Farmer. v. 181, no. 8. April 9, 1938. p. 12-15. Illustrations.

Feeds and Feeding.

Creep feeding and finishing beef calves. By B.R. Taylor. O.S. Willham, and L.E. Hawkins. Stillwater, Okla., 1938. 21 p. Oklahoma agricultural and mechanical college. Agricultural experiment station. Bulletin no. 235.

Feed and bedding requirements for farm animals. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. Circular no. 32. Mimeographed.

Fences.

Fence construction and fence repairs. By W.C. Harrington. Amherst, Mass., n.d. 3 p. Massachusetts state college. Engineering extension series. No. 24. Mimeographed.

Fences, Electric

The electric fence. By W.C. Harrington. Amherst, Mass., n.d. 3 p. Massachusetts state college. Engineering extension series. No. 64. Mimeographed.

Fertilizer Placement.

Fertilizer placement. By C. Moran. Farmers Digest. v. 2, no. 1. May, 1938. p. 14-17. Placing fertilizer in a band at side of row about 2 inches from seed and a little below level of seed or seed piece, avoids early injurious effects, and assures greatest benefit to crop. Hundreds of tests by Federal State and commercial agencies support that conclusion. They also prove that part of $300,000,000 which farmers spend annually for fertilizer is wasted because fertilizer commonly is not put where it will do most good. At other extreme, it was learned that fertilizer applied in appreciable amounts close to seed or seedling roots, or in such position that seedling comes in contact with high concentration of soluble fertilizer salts, usually delays germination, retards seedling growth, or causes highly mortality of plants.

Floods and Flood Control.

Flood control research for the Susquehanna Valley. Public Works. v. 69, no. 3. March, 1938. p. 18. Selection of sites and preparation of designs for series of dams which eventually will control flow of water through entire Susquehanna Valley, and, it is hoped eliminate danger of serious floods therein in future, is purpose of intensive studies being made at Cornell University by War Department, School of Civil Engineering cooperating. Hydraulics research is dealing with problems in channel improvement, construction of check dams and other water control measures; and that in soil mechanics relates to foundations and suitable materials for earth embankments and dams. In connection with former, a model has been made of two miles of Chenango river

Floods and Flood Control. (Cont'd)

through Binghamton to scale of 12 inches to 75 feet. Tests with model of results of flood conditions are made on basis of three different levels of Susquehanna, since level of that river, into which the Chenango empties, has important effects on flood level at Binghamton. Dams will be built on most of important tributaries of upper Susquehanna most of them of earth; and soil studies are being made with view to obtaining information relating to stability, permeability, seepage, settlement, angel of slope, etc., of earth dams built of soils at each place considered.

Flood forecasting. By Herbert Gough. Scientific American. v. 158, no. 5. May, 1938. p. 261-264. Daily gaging of Tennessee Valley stream levels and rainfall. Dams store or release water accordingly. For flood control, navigation.

Flood routing: By Cecil S. Camp and R.D. Goodrich. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 1065-1068.

Ounce of flood prevention is worth a pound of flood control. By J.E. Stanford. Southern Agriculturist. v. 68, no. 1. January, 1938. p. 38.

Report to the Governor, the Honorable Herbert H. Lehman by the New York State planning council for the Division of state planning in the executive department for the period ending June 30, 1937. Albany, N.Y. 1937. 145 p. Water resources and flood relief. p. 25-34. Preliminary survey of the water resources of New York, p. 101-118. Flood problem, p. 119-122.

Floors.

New clay tile floor system. By Elwyn E. Seelye. Engineering News-Record. v. 120, no. 21. May 26, 1938. p. 745. In a variation of the conventional one-way tile and concrete joist system the tile carries stress instead of acting merely as a filler.

Flow of Water.

Flow in open channels. By E.S. Bellasis. Indian Engineering. v. 103, no. 4. April, 1938. p. 135-136. Mr. G. Lacey's diagram and formulae.

Flow of water through pipe bends. Engineering News-Record. v. 120, no. 22. June 2, 1938. p. 777-778. Results of experiments led to following conclusions: (1) All bends act as obstructions to flow, causing greater loss of head than equal length of straigth pipe. (2) Velocities of filaments along inner side of bend are increased, and those along outer side are decreased in their velocity in tangent approaching bend. (3) Loss of head increases with increase in length of head, for pipe of equal size, equal radius of curvature, and like

Flow of Water. (Cont'd)

material and conditions, and is greatest for bend in which tangents are joined without intervening curved section. (4) For given pipe bend and given quantity of flow, head lost in bend is influenced greatly by velocity distribution in approach tangent. (5) From difference between pressures on inner and outer sides of bend at point of maximum differences, having size of pipe and radius of curvature of bend, it is possible to compute mean velocity and therefore quantity of flow. (6) Losses in pipe bends experimented upon appear to vary as square of velocity and not as 2.25 power suggested by some investigators.

Ordered tidal-canal flow. By Donald F. Horton. Engineering News-Record. v. 120, no. 22. June 2, 1938. p. 785-787. Flow in Cape Cod Canal improved by remodeling the ocean bottom at the west end to a plan suggested by model tests.

Passage of turbid water through Lake Mead: Discussion. By Nathan C. Grover and Charles S. Howard. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 919-927.

Fuels.

Comparative costs of fuel for cooking. Amherst, Mass., n.d. 2 p. Massachusetts state college. Engineering extension series. No. 9. Mimeographed.

Hay Handling.

Average weights of hays for the North Atlantic states (In cubic feet per ton). Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 45. Mimeographed.

An experiment in hay chopping. By W.C. Harrington and W.H. Tague. Amherst, Mass., n.d. 5 p. Massachusetts state college. Engineering extension series. No. 18. Mimeographed.

One-man low-cost hay hoist. By Wallace George. Electricity on the Farm. v. 11, no. 6. June, 1938. p. 17-18, 26.

Hay Drying.

Artificial drying of hay. By W.C. Harrington. Amherst, Mass., n.d. 4 p. Massachusetts state college. Engineering extension series. No. 7. Mimeographed.

Heating.

Hen battery room heating. By Glen Cushing. C.R.E.A. News Letter. no. 17. June, 1938. p. 36-38.

Heating.

Outtake flue areas and sizes. Amherst, Mass. n.d. Massachusetts state college. Engineering extension series. Circular no. 16. 1 p. Mimeographed.

Hitches.

Horse power and lost power. By C.W. Duppstadt. Pennsylvania Farmer. v. 118, no. 8. April 9, 1938. p. 28-29. Discussion of hitches.

Hotbeds, Electric

First electric hotbed. By J.C. Scott. Electricity on the Farm. v. 11, no. 6. June, 1938. p. 19.

Hydraulics.

Construction and testing of hydraulic models. Muskingum watershed project: Discussion. By George E. Barnes and J.G. Jobes. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 909-911.

Notes on accuracy of movable-bed hydraulic models. By Joe W. Johnson. Civil Engineering. v. 8, no. 6. June, 1938. p. 410-411.

Hydroponics.

Crop production without soil. By W.E. Tottingham. C.R.E.A. News Letter. no. 17. June, 1938. p. 21-22.

Growing plants without soil by the water-culture method. By D. R. Hoagland and D. I. Arnon. C.R.E.A. News Letter. no. 17. June, 1938. p. 12-21. Report is divided into two parts: 1. General discussion; II. Procedures for growing plants by water-culture method. Second part is presented in response to many insistent requests for specific information. However, because of wide variations of conditions (climate, water, etc.) affecting plant growth, modification of directions given may be needed on basis of local experience.

"Hydroponic" soilless farm created on Wake Island. Science News Letter. v. 33, no. 20, May 14, 1938. p. 318. Farm will consist of series of shallow tanks, now rapidly being installed. These will be filled with water in which mineral fertilizer salts are dissolved in right concentration to feed green plants. Over tops of tanks wire netting will be stretched on which, supported by sawdust, excelsior, or other suitable material, tomatoes, peas, beans, carrots, and other vegetables will grown, drawing their water and mineral nutrients out of the tanks in which their roots will be dangling. Results indicate that for present at least profits cannot be expected from crops consisting of dry seeds, like wheat and other grains, particularly when these also depend for their value on high protein content. It appears more profitable to raise plants in fresh vegetable class, which have high water

Hydroponics. (Cont'd)

content, and are valued mainly for carbohydrates, vitamins, attractive flavor, and mineral salts. Tomatoes have thus far proved most successful.

Indiana nutrient solution methods of greenhouse crop production. C.R.E.A. News Letter. no. 17. June, 1938. p. 22-25.

New Jersey methods of growing plants in solution and send cultures. C.R.E.A. News Letter. No. 17. June, 1938. p. 26-27.

Irrigation.

Believe it or not. By C.B. Greenough. Electricity on the Farm. v. 11, no. 6. June, 1938. p. 9, 33. Makes extra 10¢ per pound of butterfat by irrigating pastures with electric pump in a county having 96 inches of rainfall per year.

Damage to agricultural land resulting from flooding with sea water. By T.H. Cranfield. Journal of the Ministry of Agriculture. v. 45, no. 1. April, 1938. p. 11-15.

Irrigation is important in producing high yields. By Gregory Cavendish. Market Growers Journal. v. 62, no. 9. May 1, 1938. p. 262-263. Overhead systems proving profitable for truck farmers, citrus growers and others.

Irrigation of sugar cane in Hawaii. New Agriculture. v. 20, no. 7. April, 1938. p. 9.

Irrigation of sugar cane in Hawaii. New Agriculture. v. 20, no. 8. May, 1938. p. 11. Part 2.

Sprinkler irrigation in the humid sections of Oregon. By F.E. Price. C.R.E.A. News Letter. no. 17. June, 1938. p. 38-40.

Well water for irrigation. By Eugene S. Perry. Montana Farmer. v. 25, no. 13. March 1, 1938. p. 6, 31.

"Wild flooding" system. By O.W. Monson. Montana Farmer. v. 25, no.15. April 1, 1938. p. 8. Simplest, cheapest and at the same time most inefficient system of flood irrigation is illustrated in accompanying drawing. Although it is rather crude and is wasteful of water, still it will serve purpose temporarily on fairly level land.

Lighting.

Demonstration of lighting fixtures. By P.T. Montfort. C.R.E.A. News Letter. no. 17. June, 1938. p. 52-54.

How to make a lighting reflector. Amherst, Mass., 1937. 2 p. Massachusetts state college. Engineering extension series. No. 41, revised. Mimeographed.

Lighting.

Protecting farm buildings from damage by lightning. W.C. Harrington. Amherst, Mass., n.d. 4 p. Massachusetts state college. Engineering extension series. No. 56. Mimeographed.

Malaria Control.

Civil Engineer and malaria control. By L.M. Clarkson. Civil Engineering. v. 8, no. 6. June, 1938. p. 398-399. Emphasizing the economics of the problem and outlining the obligations of the profession.

Milk Cooling.

Characteristics of insulated concrete milk cooling tanks. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension information series no. 2. Mimeographed.

Pre-cooling milk. By C.I. Gunness. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 20. Mimeographed.

Suggestions for selection, installation, and operation of milk cooling equipment. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 27. Mimeographed.

Milk Houses.

Notes on milk house construction. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 25. Mimeographed.

Miscellaneous.

Harvesting and selling seed of southern pines. By P.C. Wakeley. Washington, D.C., U.S. Govt. print. off., 1938. 8 p. U.S. Department of agriculture. Leaflet no. 156.

Report of the Board of State engineers of the State of Louisiana to his excellency, Richard W. Leche, Governor of Louisiana from April 1st, 1936, to January 1st, 1938. New Orleans, La., Hauser printing company, 1938. 239p.

Space requirements for organized games and sports. By W.C. Harrington. Amherst, Mass., n.d. 2 p. Massachusetts state college. Engineering extension series. No. 38. Mimeographed.

Motor Fuel.

And now another tractor fuel: Implement & Machinery Review. v. 64, no. 757. May 1, 1938. p. 69. This is called butane. Butane is distinct competitor, both as regards power and cheapness, with Diesel oils, especially among those farmers who reside round and about oil fields and refineries on Pacific coast. Used extensively to run tractors and motor lorries.

Motor Fuel. (Cont'd)

High-pressuring for agrol plants. By M.G. Van Voorhis. National Petroleum News. v. 30, no. 19. May 11, 1938. p. 25-26, 28-29. Chemurgists seeking aid of farmers and Chambers of Commerce for local alcohol plants through the Corn Belt.

Studies on the utilization of wood gas for small tractors. By J.H. Hopfen. Monthly Bulletin of Agricultural Science and Practice. v. 29, no. 4. April, 1938. p. 149-150. Experiments carried out to date appear to indicate that small tractor operated by wood gas, when improved, will offer small farmer possibility of utilizing mechanical power for field and farm work as well as for transport purposes.

Motors, Electric

Operating silage cutters with five horsepower motors. By W.C. Harrington. Amherst, Mass., 1932. 4 p. Massachusetts state college. Engineering extension. Information series. No. 1. Mimeographed.

Selection and application of small motors for heating, ventilating and air conditioning. By B.S. Weaver. General Electric Review. v. 41, no. 5. May, 1938. p. 223-228. Survey of service requirements and power supply. Types of motors applicable to service conditions. Types of applications and motor requirements. Miscellaneous considerations; enclosures, bearings, control and tests.

Oil Burners.

Tailor-made flame makes oil burners fit. Science News Letter. v. 33, no. 20. May 14, 1938. p. 312. Announced by General Electric Company.

Pest Control.

Spreading 'hopper' poison. Montana Farmer. v. 25, no. 15. April 1, 1938. p. 4. Farm experiments show combine straw spreader to be most efficient method of distributing bait. Many also use end-gate seeders and blowers. Expense involved in adaptation of combine straw spreaders was slight, and distribution of bait was rapid and uniform. Spreader can again be attached to combine after put to temporary use in spreading poison.

Pipes and Piping.

Manning formula table for the solution of pipe problems. By H.W. King. 1st ed. New York, McGraw-Hill book company, inc., 1937. 351 p. Giving diameters in inches corresponding to different rates of loss of head and different degrees of roughness of pipe surfaces.

Plows.

New method of making plow repairs offered. Implement & Tractor. v. 53, no. 10. May 14, 1938. p. 40. New method offered by New Process Plow Welding Co., Perry, Iowa, by which electric or oxy-acetylene welding can apply plow point and new cutting edge to old plow.

The plough. By T.H. Borgas. Journal of the Department of Agriculture of South Australia. v. 41, no. 6. January, 1938. p. 572-577.

Poultry Houses and Equipment.

Biddy's home goes modern. By K.J.T. Ekblaw. Better Farm Equipment and Methods. v. 10, no. 9. May, 1938. p. 4-5. Latest poultry houses use steel and insulation. Gives details of use of steel and insulation in combination.

Electric brooders show uniform satisfaction. Wisconsin Agriculturist and Farmer. v. 65, no. 9. April 23, 1938. p. 17. Table gives 1937 tests of electric brooders on Purdue University Agricultural Experiment Station farms.

Electric poultry brooder. C.R.E.A. News Letter. No. 17. June, 1938. p. 27-36. Advantages of poultry brooders: 1. Automatic operation. 2. Saves labor and time. 3. Less time. 4. Fire hazard is reduced to a minimum. 5. Does not require attention. 6. Heat is retained. 7. For late season brooding the electric brooder is probably the most economical, as it uses energy only when the temperature falls below a predetermined level. 8. No fumes nor smoke are given off by an electric brooder such as are common to the fuel-burning types.

Homemade poultry water fountains. W.C. Harrington. Amherst, Mass., n.d. 6 p. Massachusetts state college. Engineering extension series. No. 60. Mimeographed.

Public Works.

Effects of the Works program on rural relief; A survey of rural relief cases closed in seven states, July through November 1935. By Rebecca Farnham and Irene Link. Washington, U.S. Govt. print. off., 1938. 115 p. U.S. Works progress administration. Division of social research. Research monograph XIII.

Public works engineers' yearbook, 1938. Including the Proceedings of the 1937 Public works congress held at Atlanta, Georgia, Oct. 4-6, 1937. Chicago, American public works association, 1938. 459 p. Flood control, irrigation, and drainage. By Abel Wolman. p. 156-179.

Pumps and Pumping.

Efficient pumps. Montana Farmer. v. 25, no. 14. March 15, 1938. p. 10. Table shows horsepower, pump capacity and power costs based on direct connected high efficiency pumps using electric power and average electric power rates.

Pumps and Pumping. (Cont'd)

Giant electric pumps lift water over mountains. Science News Letter. v. 33, no. 20. May 14, 1938. p. 316. High-speed centrifugal pump will lift about 200 cubic feet of water a second over the mountains to Southern California.

Rainfall and Run-off.

Chemical content of Oklahoma rainfall. By V.G. Heller. Stillwater, Okla., 1938. 23 p. Oklahoma agricultural and mechanical college. Agricultural experiment station. Technical bulletin no.1. Bibliography, p. 23.

Effect of degree of slope and rainfall characteristics on run-off and soil erosion. By J.H. Neal. Agricultural Engineering v. 19, no. 5. May, 1938. p. 213-217. Conclusions: Infiltration was not affected by either slope or rainfall intensity but varied inversely as initial soil moisture content. Percentage of slope had no apparent effect on percentage of runoff for slopes above one percent. Percentage of runoff increased as rain intensity increased, but at decreasing rate. When soil was dry before rain, runoff did not occur until several minutes after rain started. Time elapsing between beginning of rain and time when runoff occurred, decreased as both slope and rain intensity increased. After runoff started there was a continual increase in rate until infiltration rate had become approximately constant. This occurred 1 to 2 hours after beginning of rain. Density of runoff material decreased during first hour of rain. When rain continued longer, density remained approximately constant. from $1\frac{1}{2}$ to 2 times as much runoff was required to remove a pound of soil at end of one hour as at beginning of rain. Relative density of runoff material increased as both slope and rainfall intensity increased. Soil losses from saturated soil increase as 0.7 power of slope, 2.2 power or rain intensity, and directly as time of duration of rain. Amount of erosion from soil which was in dry condition at beginning of rain was affected by initial soil moisture content and condition of soil surface, in addition to degree of slope, rain intensity, and duration of rain. Soil is dry, pulverized condition or one in dry, rough condition, will absorb much more rainfall than one in smooth, hard baked condition.

Effect of the degree of slope and rainfall characteristics on runoff and soil erosion. By J.H. Neal. Columbia, Mo., 1938. 47 p. University of Missouri. College of agriculture. Agricultural experiment station. Research bulletin 280. Bibliography.

Relation of rainfall to soil erosion. By J.H. Neal. St. Paul, Minn., 1938. 1 p. University of Minnesota. Agricultural extension division. Agricultural engineering news letter. No. 74.

Runoff of Florida streams. By Donald S. Wallace. Civil Engineering. v. 8, no. 6. June, 1938. p. 405-407.

Reclamation.

Reclamation as an aid to industrial and agricultural balance: Discussion. By Ernest P. Goodrich and Calvin V. Davis. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 907-908.

Refrigeration.

Ice well for farm refrigeration. By Ralph L. Patty. Hoard's Dairyman. v. 83, no. 7. April 10, 1938. p. 210-211. Ice wells are made by excavating well that is approximately eight feet square and eight feet deep, and curbing it up to prevent caving. A small building is then built over the well, or old building moved over it. One solid chunk of ice is frozen in this well during winter by adding water in small quantities and allowing it to freeze in thin layers. During following summer this well, which is underneath floor of building, is used as refrigerator for cooling dairy products, and foods for farm kitchen. Cream cans, milk, or foods are lowered beneath floor of house and to rack which rests on ice. Rack should be made of wood or some other good insulating material, and it should hold warm cans of milk or other products, just above ice. Experimental studies made at Mandan, North Dakota Experiment Station, showed that temperature in ice well twelve inches above ice averaged 47 degrees F. At six inches above ice temperature averaged 46 degrees F., or one degree less, while at one inch above ice temperature was 37½ degrees F.

Retired refrigerator cars for air- and ice-cooled storage. By H.A. Cardinell. Quarterly Bulletin, Michigan Agricultural Experiment Station. v. 20, no. 4. May, 1938. p. 240-247. Preliminary report.

Thermodynamics of absorption refrigeration. By Burgess H. Jennings and Francis P. Shannon. Refrigerating Engineering. v. 35, no. 5. May, 1938. p. 333-337. Tables of the properties of aqua-ammonia solutions.

Refrigerator Lockers.

Cold storage locker idea sweeps country. Oregon Farmer. v. 61, no. 7. March 31, 1938. p. 11. Recent reports from United States Department of Agriculture indicate that more than 2,500 plants for renting family lockers are now in operation, with about 50 new ones opening up each month.

Description of Indiana refrigerated storages. Refrigerating Engineering. v. 35, no. 5. May, 1938. p. 320, 322.

Freezing our farm foods. By Ted Leitzell. Michigan Farmer. v. 189, no. 6. March 12, 1938. p. 3, 32.

"Magic Key" so farm folks say, "opens our freezer-lockers." By Lois J. Hurley. Wisconsin Agriculturist and Farmer. v. 65, no. 9. April 23, 1938. p. 1, 5, 9, 15.

Refrigerated storages for Indiana orchards. By Clarence E. Baker. Refrigerating Engineering. v. 35, no. 5. May, 1938. p. 317-320. Part 1.

Refrigerators.

General purpose farm refrigerator. By P.T. Montfort. C.R.E.A. News Letter. no. 17. June, 1938. p. 43-45.

Research.

Comparative expenditures for agricultural and industrial research. Experiment Station Record. v. 78, no. 5. May, 1938. p. 582-583.

Reservoirs.

Construction methods at Cajalco Reservoir. By R.B. Ward. Civil Engineering. v. 8, no. 6. June, 1938. p. 377-380. Cajalco Reservoir, main storage unit of Colorado River Aqueduct System, was completed early in 1938. Its principal features include earth dam 210 feet in height, and earth dike 94-feet in height, with combined length of more than 1.8 miles. Care taken on control of embankment materials is reflected in report that maximum settlement in higher structure has totaled only 0.22 ft. to date. Important steps in construction are recounted in article.

Roadside Stands.

Suggestions for the location of farm produce stands. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 63. Mimeographed.

Roofs.

Asphalt shingle roofing. By W.C. Harrington. Amherst, Mass., n.d. 3 p. Massachusetts state college. Engineering extension series. No. 48. Mimeographed.

Cold application roofing. Amherst, Mass., n.d. 4 p. Massachusetts state college. Engineering extension series. No. 54. Mimeographed.

Galvanized corrugated sheet roofing. By W.C. Harringtom. Amherst, Mass., n.d. 3 p. Massachusetts state college. Engineering extension series. No. 43. Mimeographed.

Let the winds blow. Hoard's Dairyman. v. 83, no. 7. April 10, 1938. p. 217. Mauch attention is being given to trussed rafter, gambrel type, of barn roof construction which has been designed on basis of results of extensive tests conducted at Iowa State College, under direction of Prof. Henry Giese. It is believed that this new type of truss will make an outstanding contribution to reduction of cost of barn buildings. Besides being economical, simple, and easy to erect, this design is winning favor because of its ability to hold up under heavy snows and against strong winds. Another merit is that it provides effectively for use of heavy mechanical hay fork. Survey conducted by Prof. Giese revealed that one-half of all losses sustained by farm buildings is damage to barn. Large part of this damage is caused by wind, and most of that loss is due to either defective design, or too light construction.

Roofs. (Cont'd)

Metal shingle roofing. W.C. Harrington. Amherst, Mass., n.d. 4 p. Massachusetts state college. Extension engineering series. No.62. Mimeographed.

Recommendations for roofing farm structures. Amherst, Mass., n.d., 1 p. Massachusetts state college. Engineering extension series. No. 35. Mimeographed.

Recommended wood shingle roof construction. Amherst, Mass., n.d. 3 p. Massachusetts state college. Extension engineering series. No. 39. Mimeographed.

Roofing for farm structures. W.C.Harrington. Amherst, Mass., n.d. 6 p. Massachusetts state college. Engineering extension series. No. 49. Mimeographed.

Structural analysis of roof truss design. By Woodrow Arrington. Agricultural Engineering. v. 19, no. 5. May, 1938. p. 199-200, 204.

Septic Tanks.

Minimum recommendations for sizes of septic tanks for institutional uses. Amherst, Mass., n.d. 1 p. Massachusetts state college. Extension engineering series. No. 40. Mimeographed.

Silage.

Causes of spoilage of silage. W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 52. Mimeographed.

Silos.

Selecting a sili. By W.C. Harrington. Amherst, Mass., 1935. 1 p. Massachusetts state college. Engineering extension series. No. 46. Mimeographed.

Silt.

Study silting effect on hydro plants. Electrical World. v. 109, no. 21. May 21, 1938. p. 76. Some light on degree of silting in reservoirs and streams adjacent to hydro-electric developments may be shed by new sediment-load testing laboratory of U.S. Department of Agriculture on Rocky Creek in Iredell County, North Carolina. In North Carolina project fourteen concrete veins 5 ft. apart join concrete and stone revetments. Four feet below each section is 16-inch pipe leading to pump house, where hydraulic oil cylinders permit sample from each or any vein to be pumped into test vats. Qualitative and quantitative analysis of samples determine from suspended load what bed load of sediment is carried by stream under all conditions. It is aim of this experiment to find how to prevent depletion of reservoir capacity by finding out what went into it after each rain; relationship between sediment load and hydraulic

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functions of stream; how much damage is being done to land on particular watershed, and how much would be justifiable to spend in particular section to control soil erosion, and best method to adopt for purpose; conservation of navigability of streams, and prevention of flood damage.

Theory of silt transportation. By W.M. Griffith. Proceedings of American Society of Civil Engineers. v.64,no. 5. May, 1938. p. 859-874. Theory of silt transportation is outlined, and equilibrium equations are presented which it is claimed are applicable to channels of all sizes and shapes, provided silt load and bed consist of "loose granular material," and provided certain hydraulic conditions are satisfied. Equations are of special value in problems relating to river-control works and tidal river outfalls; for example, they can be used to estimate change in bed level that will result from widening or "tightening" a river section, or to determine whether proposed dredge cut can be expected to maintain itself.

Soils.

Essential considerations in the stabilization of soil: Discussion. By C.A. Hogentogler and E.A. Willis. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 928-930.

Graphical representation of the mechanical analysis of soils: By Joel D. Justin, L.B. Olmstead, T.A. Middlebrooks and Frank B. Fahlquist and Waldo I. Kenerson. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 994-1003.

Practical application of soil mechanics. A symposium: Discussion. By William L. Wells. Proceedings of American Society of Civil Engineers. v. 64, no. 5. May, 1938. p. 931-936.

Proceedings of the American society for horticultural science for 1937. 34th annual meeting, Indianapolis, Indiana, December 28, 29, and 30, 1937. Geneva, New York, Published by the Society, 1938. 902 p. Vegetable growth as affected by location of the heating cable in the hot bed. By E.F. Burk and H.N. Colby. p. 721-724. Primary object of work was to determine effect of cable location on type of plant development produced both above and below ground.

Save New Jersey soil. New Brunswick, N.J., 1938. 24 p. State soil conservation committee. Bulletin no. 2. New Jersey.

Soldering.

Soldering. By W.C. Harrington. Amherst, Mass., 1938. 5 p. Massachusetts state college. Engineering extension series. No.68. Mimeographed.

Spontaneous Combustion.

Spontaneous combustion of hay. By W.C. Harrington. Amherst, Mass., n.d. Massachusetts state college. Engineering extension series. No. 6. Mimeographed.

Spraying and Dusting.

Dusting for control of citrus pests. By Orval C. French. Agricultural Engineering. v. 19, no. 4. April, 1938. p. 165-166, 169. Important advantages of dusting as compared to spraying: (1) It is much faster, and (2) it is considerably less costly.

Dusting to control pests of potatoes and other truck crops. By C.R. Orton and A.L. Keller. Morgantown, W.Va., 1938. 4 p. West Virginia university College of agriculture. Cooperative extension work in agriculture and home economics. Circular 321.

New citrus dusting equipment. By Orval C. French. Pacific Rural Press. v. 135, no. 7. February 12, 1938. p. 174.

Oil sprays for deciduous fruit trees by the tank mixture method. By A.D. Borden. Berkeley, California, 1938. 15 p. University of California. Agricultural Experiment station. Circular 345.

Replacing power plants of spray rigs. By W.C. Harrington, Amherst, Mass., 1938. 2 p. Massachusetts state college. Engineering extension series no. 61. Mimeographed.

Stationary filling tanks for portable spray rigs. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. no. 12. Mimeographed.

Storage Houses.

Home storage of vegetables. By William R. Cole. Amherst, Mass., 1937. 8 p. Massachusetts state college. Extension service. Leaflet 34.

Stoves, Electric

Suggestions for users of electric ranges. By W.C. Harrington. Amherst, Mass., n.d. 1 p. Massachusetts state college. Engineering extension series. No. 31. Mimeographed.

Stream Flow.

Stream flow records of Pennsylvania 1937. Prepared in cooperation with the United States Geological Survey for the year October 1, 1936 to September 30, 1937. Harrisburg, Pa., Department of forests and waters. Division of hydrography, 1938. 152 p. Processed.